carrier's loop and Verizon's house and riser element as well as certain cross-connection charges.

1. House and Riser Access Service

In criticizing Verizon's proposed house and riser costs, AT&T notes, first, that they are as much as three times the costs claimed in the First Elements Proceeding, a change attributable to a reduction of the utilization factor from 65% to 40% and to application of the environmental factor previously discussed. With respect to the latter, AT&T would simply adjust house and riser rates by applying generally the modified ACFs it advocates. As for utilization, AT&T contends Verizon has tried to justify the reduced fill factor only on the grounds that it is the same as the factor used for loop distribution plant generally, but AT&T contends that utilization factors for multi-dwelling units could be expected to be higher because the serving area is of fixed size. AT&T would nevertheless apply the 56% fill factor it recommends for distribution plant generally. The CLEC Coalition, however, urges retention of the 65% fill factor proposed by Verizon and adopted in the First Proceeding,[242] contending that Verizon has not borne its burden of proving a lower factor warranted and citing its witness Kahn's testimony that "the incremental cost of reinforcing house and riser capacity is less than the cost of doing the same for either aerial or buried outside plant facilities. The utilization rate for riser cable would accordingly be greater than that for distribution facilities."[243]

The Federal Agencies similarly contend it is unreasonable for Verizon to be proposing rates that exceed those currently tariffed by two to three times, inasmuch as the tariffed rates reflect embedded costs and older technologies. They regard higher house and riser costs in Manhattan as anomalous inasmuch as the larger buildings should warrant larger

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[242] See First Elements Proceeding (Phase 2), Tr. 4,352.

[243] Tr. 4,369.

cables with lower unit costs per wire pair. They note the importance of the issue to them inasmuch as most Federal offices in large cities are located in multi-story buildings.

Verizon responds that the currently tariffed house and riser rates are the TELRIC-based rates set in the First Elements Proceeding, and it cites its general explanations of why proposed rates exceed current rates and why environmental factors may lead to higher unit costs in Manhattan. It regards the 40% utilization factor as conservative, noting the practical and economic difficulties of adding cable inside a building in contrast to the modest cost of providing larger cables at initial installation.

AT&T also would reduce basement backboard investment by 50% and upper floor backboard investment by 75% to correct for what it regards as Verizon's understatement of backboard capacity. It contends that Verizon assumes that a backboard receives only two blocks and therefore has a maximum capacity of 100 pairs of cable; AT&T maintains the proper figures are four blocks and 200 pairs of cable. The situation is compounded on upper floors, where Verizon contemplates using a backboard to mount only one KRONE block.

Verizon disputes AT&T's adjustments, contending that even though one backboard can hold up to four blocks, two blocks are needed for each 50 pair cross-connection and that four blocks--and one complete backboard--are needed for each 100 pair cross-connection.[244]

Verizon has adequately explained its calculated backboard investment; no adjustment is warranted. With respect to fill factors, Verizon identifies countervailing factors that might offset those tending to increase house and riser cable fill factors in comparison with those for distribution cable generally; but it has not shown why it now proposes to apply the distribution fill factor to house and riser cable even though it proposed a 65% fill factor in the First Proceeding. Taking

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[244] Verizon's Initial Brief, p. 165, citing Tr. 3,429-3,430.

account of all these considerations, I recommend a fill factor here of 60%

2. House and Riser Connection Service

AT&T contends that both offered alternatives--the "50 pair terminal charge" if the CLEC's loop is within cross-connect range of Verizon's house and riser terminations, and the "building set-up charge" if the loop is beyond--are excessive. In its reply brief, Verizon notes that the building set-up service rate and the associated service have been eliminated from its tariff; they are, accordingly, not further discussed.

With regard to the situation where the CLEC is within cross-connection distance, AT&T objects to Verizon's proposal to charge the CLEC for half a backboard, a 50-pair block, and connections to the block, contending that the use of the additional block is precluded by the FCC's requirement of a single point of interconnection. It characterizes the charge as violating competitive neutrality, inasmuch as Verizon itself would continue to have a direct connection to the existing basement terminals, without need of the additional equipment. AT&T urges an interim costing construct "that assumes the existence of multiple carriers, a single point of interconnection, and does not disadvantage CLECs by requiring them to pay for additional unneeded equipment."[245] A permanent arrangement would be pursued in a collaborative process. Verizon, however, sees no discrimination, contending that the CLEC can supply its own connection block, thereby avoiding the 50-pair terminal charge, and that its offering satisfies the single point of interconnection requirement. It states its willingness to negotiate other forms of single point of interconnection on a case-by-case basis.

From a costing point of view, it appears that a CLEC can avoid the charge at issue here, and no action in this proceeding is warranted. To the extent provisioning issues are

[245] AT&T's Initial Brief, p. 128.

presented, they should be dealt with in other contexts, general or specific.

Finally, AT&T urges rejection of the proposed house and riser asset inquiry charge, contending that requiring CLECs to bear the costs generated by historical inadequacies in Verizon's inventory records would violate forward-looking costing principles. Verizon notes that it maintains an ownership database that is available free of charge on its website and that the charge at issue is imposed only when the database fails to resolve an ownership question and intervention by engineers is needed. It contends these costs are incurred and are calculated on the basis of forward-looking work times.

Verizon argues that it has estimated these costs on a forward-looking basis and that it is not requiring CLECs to fund the development of a data base; but it fails to respond to the suggestion that these costs would not be incurred at all had its embedded record keeping system been designed with the provision of UNEs in mind. If that is so, a strict TELRIC construct might well require disallowing the costs even if Verizon had not acted imprudently, in the classical regulatory sense, in designing its system. At the same time, there is no showing of imprudence; the costs are real and calculated in a forward-looking manner; it seems likely that at least some of these costs would be incurred in connection with a database that contemplated provision of UNEs; and denying the costs outright would incur the risk of assuming a "fantasy" record keeping system. On balance, I recommend allowance of the costs.

SWITCHING COSTS

Introduction

Verizon proposed the following rate elements for local switching:

- Line Ports (analog, digital, and coin);
- Trunk Ports (digital); and

- Local Switch Usage (terminating and originating).[246]

The unbundled switching element includes all features that can be provided through the switch, which Verizon considers to be consistent with the FCC's definition of the switching element as including all features that the switch is capable of providing, except for those that require specific, unique hardware, which are separately priced. It also determined a "feature-free" switch usage rate that excludes all vertical feature costs.

To determine the material costs associated with local switching, Verizon used the switching cost information system (SCIS), a switch cost model created and maintained by Telcordia, Inc.[247] The SCIS/Model Office (SCIS/MO) module lets the user specify a model central office and determines the associated costs. Verizon requested its engineers to specify forward-looking model offices for each of the three geographic zones studied and for both of the switch types (Nortel DMS-100 and Lucent 5-ESS) used by Verizon. Switch vendor list prices are built into SCIS, and the discounts off list price offered to particular customers, a very controversial issue here, are supplied as inputs when SCIS is run. Verizon asserts that SCIS is an established and widely used costing tool whose results have been accepted in numerous regulatory proceedings and whose calculated material costs come within a reasonable approximation of those produced using the switch vendors' own pricing tools.

In addition to raising the vendor discount issue already noted, the CLECs challenged Verizon's switching study on other grounds including the relative proportions of Nortel and Lucent switches and the operation of SCIS. In addition, issues were raised concerning the allocation of switching costs between switch usage and non-usage sensitive ports. This section begins

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[246] Verizon's Initial Brief, p. 230.

[247] Telcordia is the successor to Bellcore, which, in turn, took over many functions performed, before the breakup of AT&T in 1984, by Bell Labs.

with the vendor discount issue, perhaps the most hotly contested in the entire proceeding.

Vendor Discounts and Switch Material Costs

1. Background

In Phase 1 of the First Elements Proceeding, the Commission expressed a lack of confidence in the costs suggested by the conflicting studies submitted by the parties, and it set rates on the basis of a Staff analysis. It noted, among other things, that in making an adjustment to capture the downward trend in switching costs, it "did not take account . . . of the atypically large discounts received by [Verizon] from its vendors after 1994 in connection with a major switch replacement program."[248] The Commission so decided in large part on the basis of Verizon's attribution of those large discounts to the switches' having been purchased as part of its program to replace analog switches with digital. Verizon argued that vendors were willing to offer unusually large discounts in connection with such replacement programs (to encourage upgrades that create a market for new software), but that the replacement program was nearly complete and the discounts therefore were unlikely to continue or recur. On rehearing, the Commission rejected both Verizon's broadbased critique of the Staff method for setting switching costs as well as WorldCom's claim that the price reduction factor was too low, finding that WorldCom had "offered no new reason for rejecting the fully explained premise that the unusually large discounts associated with analog to digital conversion would not be replicated."[249]

Later, in Phase 3 of the First Proceeding, evidence was presented suggesting that the deep discounts might, in fact, be available for all purchases of new switches, not only large-scale replacement programs. Several CLEC parties moved to reopen

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[248] Phase 1 Opinion, p. 85, n. 1. See also a similar statement in Attachment C to that opinion, Schedule 2, page 1 of 3.

[249] Phase 1 Rehearing Opinion, p. 40.

Phase 1 to redetermine switch costs in light of the newly adduced evidence; Verizon objected on a variety of grounds including the alleged insignificance of the new evidence and the need to avoid selective updates that could produce unfairly skewed results. The Commission was unimpressed by Verizon's belittling, as "inadvertent misstatement," of its own assertion that the higher discounts were uniquely associated with the analog-to-digital replacements and by its suggestion that the new information lacked significance because of the manner in which switches are purchased.[250] The Commission nevertheless denied the motion to reopen, citing the risks of selective adjustments and adding that the new evidence, even if borne out, could not generate a simple arithmetic correction to its Phase 1 calculations. It went on to note as well the likely desirability of reviewing UNE rates in general before too long, and it therefore stated its intention to institute the present proceeding. Finally, in view of the uncertainties associated with the newly adduced evidence, it left switching rates temporary, subject to future refund or reparation, even thought all other UNE rates set in the First Elements Proceeding have become permanent.

It is against this background that the discount issue in the present proceeding must be considered. The parties dispute the qualitative issue of whether to posit new switch discounts or lower "growth" discounts, i.e., the discounts associated with adding capacity to existing switches; they also

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[250] In the course of its discussion, the Commission pointed out that it had "no information suggesting that [Verizon's] errors were deliberate. But careless errors of this sort in a party's presentation are nonetheless distressing and disruptive of the process." (Case 95-C-0657 et al., Order Denying Motion to Reopen Phase 1 and Instituting New Proceeding [issued September 30 1998] p. 9, n. 1.) Because Verizon's motivation and culpability are again raised by its opponents in this proceeding, I should note that I continue to share the Commission's impression then: the evidence newly adduced in Phase 3 suggested distressing and disruptive carelessness but not deliberate misconduct.

pose quantitative issues regarding the calculation of the discount.

2. Arguments

Verizon contends, generally, that the use of pure growth discounts, rather than the higher new switch discounts, is more consistent with fundamental TELRIC principles.[251] Citing the FCC's statement in the Local Competition Order that TELRIC-based rates must capture the "incremental costs that incumbents actually expect to incur in making network elements available to new entrants,"[252] as well as the Commission's use, for purposes of costing other elements, of material prices based on the latest Verizon/vendor contracts for that material, Verizon contends that the discount it will actually receive when purchasing new switching equipment now and in the future is the growth discount. It reasons that digital switches are already fully deployed and will never be replaced by new digital switches--inasmuch as the next level of technology will become available by the time replacement is necessary--and that switch installations will be needed only to accommodate growth. It argues as well that the switch vendors inflate their new-switch discounts in the interest of creating good will, secure in the knowledge that they will never actually be used, and that, even if TELRIC is understood to require determining the costs of purchasing, all at once, an entire new network, there is no meaningful way to determine the price of doing so. Indeed, it adds, the price for total network replacement would likely exceed the currently prevailing price, given the need to strain resources to produce equipment much more

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[251] Though asserting this principle, Verizon acknowledges that the point has never been resolved by the Commission. It cites my contrary view in the Phase 3 Recommended Decision (at p. 35) and notes that its exception to my conclusion there was never ruled on by the Commission, which decided the issue on other grounds. (Verizon's Initial Brief, p. 240, n. 555).

[252] Verizon's Initial Brief, p. 241, citing Local Competition Order ¶685.

speedily than it would otherwise be needed. Verizon argues further that even if TELRIC pricing must contemplate replacement of the entire network, any such replacement would likely be done not in one fell swoop but through the retirement of old assets and the addition of new ones; and that the installation of total needed switching capacity all at once, without contemplation of growth purchases, would incur additional costs in view of the need to provide the needed excess capacity at the outset. Finally, Verizon argues that if incumbent LECs purchased new switches only, their prices would be higher, inasmuch as the deep discounts are offered by the vendor in the hope of making money on growth additions--a prospect ruled out by the hypothetical.

Verizon maintained that the actual level of discounts to be applied must be based on its existing contracts with its vendors. Because those contracts are complex and do not readily permit calculation of the discount for a particular purchase, it conducted the "vendor pricing exercise," in which it described to its vendors the switch configurations used in the model offices it studied and asked them to price out, on the basis of the current contracts, the overall growth discount that would be applied. It stressed that the pricing exercise was simply a device for calculating discounts applicable to a particular switch configuration in accordance with the existing contracts and that it was not a cost model that could be expected to generate the actual prices it would pay.

AT&T contends that because Verizon does not assume new- switch discounts, its study failed to model a reconstructed local network as required by TELRIC and thereby substantially inflated its switching costs. It maintains that the actual process by which Verizon upgrades and adds capacity to its existing switches on a piecemeal basis is irrelevant to a TELRIC analysis, and it notes the testimony of Verizon witness Curbelo in Phase 1 of the First Proceeding that he would change the numbers in his switching cost study if it turned out, contrary to his then-existing belief, that the aggressive switch purchase

discounts were available from vendors.[253] It charges that Verizon nonetheless excluded new-switching discount data from its presentation in this proceeding, even though it had obtained such data from its vendors as part of the switch pricing exercise.

AT&T points as well to a decision by the United States District Court for the District of Delaware rejecting Verizon's argument against the use of new switch discounts and citing Verizon witness Taylor's testimony that the FCC's Local Competition Order requires total reconstruction of the entire system.[254] Against this background, it characterizes Verizon's use of growth rather than new switch discounts as "inexplicable, except as a bold and deliberate attempt to substantially inflate [its] claimed switching costs."[255] It urges use of its restatement of Verizon's cost study, which uses the higher new-switch discounts. It suggests that those discounts may, in fact, be conservative inasmuch as actual competition for Verizon's business in the situation contemplated might produce prices better than those in the preexisting contracts.

In criticizing the vendor pricing exercise, AT&T disputes at considerable length Verizon's statement, in its rebuttal testimony, that its latest contract with Lucent modified the discount initially taken into account in the pricing exercise.[256] Verizon responds that AT&T's analysis bears out the complexity of the contract, which led it to undertake the vendor pricing exercise in the first place, and that Lucent shares Verizon's understanding of the contract rather than AT&T's.[257] In its reply brief, AT&T reiterates its claim that Verizon is ignoring TELRIC's long-run requirement by focusing only on the

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[253] AT&T's Initial Brief, p. 83, citing Tr. 1,490 and First Elements Proceeding, Tr. 3,006.

[254] AT&T's Initial Brief, pp. 85-86, citing Bell Atlantic-Delaware, Inc. v McMahon, 80 F. Supp. 2nd 218 (D. Del. 2000).

[255] AT&T's Initial Brief, p. 86.

[256] Id., pp. 88-104.

[257] Verizon's Reply Brief, p. 133, citing Tr. 3,465.

short-term growth of existing switches; and it disputes the relevance of Verizon's assertion that the next generation of new switching equipment will not be based on today's architecture. It characterizes as "semantic game playing"[258] Verizon's argument that it would be unrealistic to assume one-time replacement of its existing switching network, contending that that is the premise of TELRIC and that TELRIC analysis is not deterred by the prospect that costs might change in the market if the forward-looking efficient TELRIC network actually had to be constructed tomorrow. AT&T disputes as well Verizon's argument that even switching equipment purchased at the new-switch discount will have to be replaced in transactions using the growth discount, contending that technological obsolescence is a depreciation issue already accounted for; and it characterizes as "absurd"[259] the contention that the pricing exercise was intended to identify discounts rather than prices.

WorldCom argues to similar effect, alleging as well that the SCIS model is a closed black box highly dependent upon proprietary pre-processing but that it is clear that the use of growth discounts--contrary to TELRIC principles, the Delaware District Court Decision, and the FCC's finding that the price of new switches represents efficient switching costs and that the price of growth additions does not--has contributed to the substantial overstatement of Verizon's switching costs. As a result, WorldCom contends, Verizon's unbundled switching rates are out of line with those in other states that have made local competition possible. It contends the proper discounts far exceed the growth discounts Verizon used and that "the impact on the rates that Verizon charges its competitors is severe enough to threaten competition in New York if the Commission does not reject Verizon's proposal and set UNE switching rates by employing the initial switch discounts."[260] Z-Tel offers similar

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[258] AT&T's Reply Brief, p. 30.

[259] Id., p. 31.

[260] WorldCom's Initial Brief, p. 71.

arguments, noting Verizon's claim that the new-switch discount cited by vendors is unrealistically low because the vendors do not anticipate that it will be actually used and suggesting that Verizon's switch pricing exercise may likewise fail to generate a least cost price inasmuch as it is an exercise rather than a serious and competitive bid.

In response, Verizon cites a recent decision of the United States District Court for the Northern District of New York, in which the court stated that forward-looking cost determinations "must be based on the incremental costs that an incumbent local service provider actually incurs or will incur."[261] Verizon contends this means use of the growth discount, consistent with the incremental way in which networks are totally replaced in the long run. It maintains that without the prospect of growth additions at a higher price, steeply discounted new switch prices would not exist; contends that the Delaware decision cited by the CLECs is neither controlling here nor representative and "is, quite simply, badly reasoned and wrongly decided";[262] disputes the suggestion that the Commission, in its order instituting this proceeding, already decided the issue in favor of the new-switch discount; and contends that the earlier testimony of its witnesses cited by AT&T says nothing about the discount assumptions to be made for pricing purposes. Verizon defends as well its vendor pricing exercise, reiterating that its sole purpose was to obtain an assessment from the vendors of the price that would be charged under existing contracts. In Verizon's view, that is the sole non-speculative basis for determining a relevant price.

3. Discussion

As Verizon recognizes, I stated my general view on switching discounts in the Phase 3 recommended decision,

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[261] MCI Telecommunications Corp. v. New York Telephone Co., No. 97-CV-1600, slip opinion, p. 25 (NDNY March 7, 2001).

[262] Verizon's Reply Brief, p. 130.

rejecting Verizon's position. The Commission had no need to resolve the discount issue then, since it disallowed the switching costs there under review on other grounds,[263] but my comments in the recommended decision remain pertinent, though not dispositive:

> It remains necessary, of course, to identify a level of vendor discounts to recognize in determining any Phase 3 switching costs that might be properly allowed. [Verizon] contends that the proper level is the growth discount, given that most of its purchases will be incremental to its existing switches, and it characterizes as bizarre the assumption that it would in effect purchase new digital switches to replace its existing ones. But that "bizarre assumption" is, in fact, central to proper application of the TELRIC construct to switching costs. By definition, a TELRIC study examines the cost of providing a particular increment of output: the increment from a zero level of output to the current level of demand. In the switching context, TELRIC identifies the costs that would be incurred by an efficient firm in purchasing, combining, and processing inputs (given the best available technology) to produce the amount of its product(s) currently demanded. "Growth" discounts thus are not applicable in a TELRIC switching cost study. Accordingly, to the extent it is necessary to factor vendor discounts into an estimate of Phase 3 switching costs, the new switch discount should be used.[264]

Two and one-half years later, and with the benefit of abundant and forceful argument on both sides, I continue to believe that conclusion to be valid in theory, at least under what may be termed a "strong" TELRIC approach. But several factors preclude its adoption here and now.

First, while the FCC rule remains in effect pending review, the law on TELRIC is developing. As discussed above,

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[263] Phase 3 Opinion, pp. 23-26.

[264] Phase 3 Recommended Decision, pp. 34-35 (footnote omitted).

the uncertainty does not warrant suspending the case, but we should not disregard the extent to which application of a purely new-switch discount, on the premise that a hypothetical new network designed to serve the full increment of demand was dropped into place instantaneously, could be problematic under the Eighth Circuit's decision. And while we are not, of course, subject to the Eighth Circuit's direct authority, (and its decision in any event has been stayed), the decision was relied on by Judge Kahn in MCI v. New York Telephone. Judge Kahn's statement, in light of the Eighth Circuit's decision, that "price determinations made on forward-looking cost calculations cannot be based on the forward-looking costs of an 'idealized network,' but must be based on the incremental costs that an incumbent local service provider actually incurs or will incur"[265] may not support Verizon's position to the extent Verizon claims in citing it. But it certainly calls into question the propriety of an exclusively new-switch discount assumption premised on an instantaneously installed hypothetical network.

A further, factual problem, independent of the legal one and perhaps more important here, is the difficulty of ascertaining what the new-switch discount would be in the hypothetical situation of an instantaneously installed new system. Verizon argues persuasively that the existing new-switch discount is set partly in contemplation of additional sales to which only the growth discount would apply. A hypothetical in which there were no growth-discount sales might well be one in which the new-switch discount differed from its current level. Any decision to rely on the new switch discount would require adjusting it on at least that account.

None of which is to say that switching costs should be determined, as Verizon urges, solely on the basis of the growth-switch discount as determined through its vendor pricing exercise. Among other things, it seems likely that discounts are negotiated between Verizon and its vendors in light of the

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[265] MCI v. New York Telephone, supra, slip op. p. 25.

particular purchases contemplated, and there is no reason to assume that a forward-looking construct in which an entire network was being installed (even over time rather than instantaneously) would have produced the contracts on the basis of which Verizon's discounts were calculated. It is entirely possible that the prospect of such an extensive series of purchases could have generated discounts substantially higher than those under the existing contracts, and a forward-looking analysis must take account of that prospect.

When all is said and done, this is an issue on which the parties have fought hard and reached a stalemate: each has shown the other's position to be untenable. Regardless of the decision ultimately to be reached on the FCC's rule, this record simply establishes no "right" level of discount to use--in part, as noted, because the very act of assuming a switch purchase pattern would affect the data on the record regarding the level of the respective discounts.[266] Discounts will depend on a host of factors, including the contracts negotiated between vendor and purchaser, and we have no reason to believe that Verizon's existing, complex contracts, relied on by both sides as the basis for the radically different discounts they advocated, would, in fact, read the same had they been negotiated in the various contexts that TELRIC or other forms of long-run forward-looking costing might lead us to posit.

In these circumstances, the best course of action appears to be to try again to find some surrogate means of estimating switching investment. The record-based parameters of the exercise, reflecting each party's position on the discount issue, are Verizon's statewide average figure of approximately

[266] The difficulty is analogous to those posed by situations, known in both physics and the social sciences, in which outcomes are influenced by the mere fact of observation.

$128 per line[267] and AT&T's average HAI input figure of $95 per line.[268] The arithmetic mid-point between those parameters is about $111; and that point is close to the results of two disinterested studies discussed by the FCC in its July 1997 Notice of Proposed Rulemaking in the Universal Service Proceeding: the FCC staff estimated, on the basis of ILEC depreciation studies, a per-line cost of $110, and a majority of the state members of the Joint Board recommended a per-line cost of $113.[269] In its ensuing decision, the FCC adopted a per-line cost of about $95,[270] based on a regression analysis of historical data that took account of foreseeable trends. Outright adoption of that figure, favored by AT&T, is properly disputed by Verizon, which stresses the FCC's observation that the principles used in the Universal Service Proceeding cannot necessarily be transferred to UNE pricing. Nevertheless, it provides warrant

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[267] Calculated from the zone-specific estimates set forth in Exhibit 323, Workpaper B-2, §4 (3rd revision October 19, 2000). Verizon's October 19 revisions to its initially filed exhibit, which generally reduced its proposed rates, were submitted with its October 19, 2000 rebuttal testimony and are part of Exhibit 332 (333-P for the proprietary version). The workpapers underlying that update were omitted from the filing, but no party complained of that omission or, as far as I am aware, requested the workpapers. In undertaking the computations associated with this recommended decision, Staff last month requested the workpapers, and they were submitted to Staff electronically. Verizon should make them similarly available to any party now requesting them.

[268] Exhibit 314, Inputs Portfolio, p. 117, taking the $87 per line variable cost and adding to it the relevant fixed cost, thereby producing a figure comparable to Verizon's $128.

[269] Universal Service Proceeding, Further Notice of Proposed Rulemaking (rel. July 18, 1997) ¶¶130, 128. Each of those figures is estimated in the manner described in the preceding footnote.

[270] Universal Service Proceeding, Tenth Report and Order ¶296 (rel. November 2, 1999), again estimated in the manner described earlier. This figure is the basis for AT&T's HAI input.

for a figure somewhat below the midpoint of the parameters previously identified.

Taking all these factors into account, I recommend for now an estimate of per-line switching costs of $105. The parties are free, as always, to challenge that result on exceptions; but another course of action they may wish to consider would be to convene a settlement conference aimed at stipulating to the number here suggested or to some other number that both sides could accept. If the parties wish to do so, they should consult with each other and notify me within ten days of the issuance date of this recommended decision. I anticipate that another judge would serve as neutral at any such settlement conference, so that parties could speak freely without concern about compromising their positions in any further litigation on exceptions.

Finally, it is necessary to extend this discussion to the costs of tandem switching. The same issues related to vendor discounts are posed here, and they warrant reducing Verizon's cost estimate by a percentage equal to that resulting from the reduction recommended above for end-office switches. There is, however, the added factor of Verizon's inadequately explained premise that the vast majority of its tandem switches will be supplied by one of its two vendors, in contrast to Verizon's premise of an equal mix with regard to end-office switches. In a dispute made moot by the recommended resolution on switch discounts, WorldCom challenged that equal mix, urging that it be weighted more toward the less expensive vendor, and Verizon defended the equal mix (in my judgment largely persuasively) on the basis of strategic diversity and the benefits of being able to pit one vendor against the other.[271] In the tandem context, however, Verizon defends a decidedly lopsided mix on the basis of "the total number of trunks

[271] Verizon's Initial Brief, p. 234. The details of this issue, including the evidence on which of the two vendors was the less costly, are proprietary.

provided by each [vendor's] technology."[272] That claim offers no basis for finding that the mix is optimal from a cost perspective or for justifying so great a departure from the equal mix persuasively advocated by Verizon for end-office switches. In view of Verizon's burden of proof, and to impute more cost-conserving purchasing practices, I recommend that tandem switching costs be reduced by an additional 10%, after adjustment to reflect the cost conclusion reached above. Here, too, the parties are free to modify that result through negotiated stipulation.

EF&I Factor

AT&T contends that Verizon's 43.5% switch "engineer, furnish, and install" (EF&I) factor is overstated, exceeding by 72% the factors used by other telephone companies. It proposes a 25% factor, comprising what it calculates to be Verizon's own average 15% factor for vendor engineering and installation, to which it adds 10%, representing the average of the 8%-to-12% range of other companies' telephone company engineering and installation. Verizon claimed, among other things, that the components of AT&T's analysis reflect different investment bases, but AT&T maintains that it relied solely on forward-looking investments: the 15% component was derived by running SCIS using forward-looking investments, and the other data in its calculation were those proposed for use in the FCC's Universal Service Proceeding, which involved the determination of forward-looking investments.

AT&T argues as well that in an FCC proceeding, Sprint concurred that an 8% EF&I factor was reasonable, and it disputes Verizon's claim that the 8% factor covers only engineering, allowing a mere 2% for installation. It asserts that separate engineering and installation factors were not identified in the FCC proceeding and that the input at issue was the HAI Model's switch installation multiplier, which covers both engineering and

[272] Tr. 2,548.

installation. Overall, AT&T contends that Verizon has not borne its burden of proof on the EF&I factor.

Verizon argues that the 8% to 12% estimate for telephone company installation and engineering cited by AT&T was calculated on the basis of rural telephone companies, which, unlike Verizon, do not incur the costs of dealing with multi-story central office buildings. It maintains as well that lower switch prices imply a higher EF&I factor (since the EF&I factor expresses the ratio of installation costs to material costs) and that rural telephone companies, which are unlikely to enjoy Verizon's vendor discounts and consequently pay more for their switches, could be expected to have a lower EF&I factor. Verizon adds that its own EF&I factor is based on actual data regarding material and installed costs for the relevant category of plant, and that AT&T, in response to an interrogatory, could provide no specification of its claim that increased capabilities of digital switches would reduce the amount of labor required to engineer and install them.[273]

In its reply brief, Verizon renews its argument that AT&T has misrepresented Sprint's position in the FCC proceeding and has failed to provide "any convincing explanation of why the Commission should rely on a mélange of data from dissimilar companies when it has available detailed data on Verizon's actual current EF&I costs and switching investments."[274] AT&T, meanwhile, replies only that Verizon's effort to distinguish its own engineering and installation costs from those of rural telephone companies on the basis of its need to deal with multi-story central office buildings should be disregarded as extra-record as well as on the grounds that any such additional costs would be offset by Verizon's economies of scale and scope.

Verizon would prove too much with its disparaging reference to reliance on "a mélange of data from dissimilar companies" when its own actual data are available; its comment

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[273] Verizon's Initial Brief, pp. 257-258.

[274] Verizon's Reply Brief, p 138.

suggests that we should simply set rates to recover Verizon's actual costs, whatever they may be. Verizon has certainly drawn distinctions between itself and the companies that generated the data cited by AT&T, but, as AT&T argues, the distinctions can cut both ways: installation costs may be higher in Manhattan than in rural areas, but Verizon is (or should be) more likely than rural companies to enjoy economies of scale. Meanwhile, despite its burden of proof, Verizon has shown no reason other than its own actual experience to adopt its much higher figure.

AT&T's 10% figure is not well supported and seems unduly low, but in view of the record and Verizon's burden of proof, a telephone company engineering and installation factor of 15% appears fair and reasonable, making for an overall EF&I factor of 30% rather than Verizon's proposed 43.5%.[275]

Switching Cost Allocation and Rate Design

1. Allocation to Usage-Sensitive and Non-Usage-Sensitive Switch Components

Verizon allocated switching material investment costs to three components: line ports, trunk ports, and usage. Several parties, primarily Z-Tel, asserted that Verizon incurs no usage-sensitive costs in providing unbundled local switching to itself or competitors and that switching costs therefore should be recovered on a non-usage-sensitive basis, through monthly recurring port charges.[276]

Z-Tel argues, on the basis of testimony by its witness Gillan, that the SCIS model is designed, among other things, to produce usage-based retail rates on the assumption that all switching costs not associated with a line or trunk port are

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[275] The 30% factor should be computed with reference to Verizon's claimed switching material costs. There is no basis for assuming that the lower material cost I am recommending will result in lower EF&I costs in absolute terms, so the EF&I percentage, computed with reference to the recommended material costs, will be higher than 30%.

[276] AT&T offered testimony supporting a similar proposal but did not pursue it in its initial brief.

usage related. But, that assumption, it says, is inapplicable in the wholesale context, and its use would violate the FCC's requirement that costs be attributed on a cost-causative basis.[277] Z-Tel explains that the switching network element "is the proportional purchase on a per-port basis of all the capacity in a switch, including all the features and functions of the switch. The price of each port should reflect the cost of the committed capacity. A number of carriers may share the switching facility in accordance with each carrier's ports. Therefore, the relevant increment of costing switching resources is the line port, not usage."[278] Citing testimony by Verizon in the First Proceeding, Z-Tel disputes the premise that switches are installed before processors are exhausted, which would suggest that fixed common costs should be allocated on a usage-sensitive basis, and maintains that switches are installed not because of processor exhaust, but to add additional lines.

Z-Tel contends further that the costs of features and annual right-to-use (RTU) fees for software associated with vertical features should not be applied on a usage sensitive basis, characterizing Verizon's effort to do so as "outrageous" in view of its argument, in the Reciprocal Compensation Reexamination Proceeding, that vertical switching features should be excluded from the costs subject to reciprocal compensation. The Commission declined to adopt Verizon's proposal but referred the matter here,[279] and Z-Tel urges rejection of any recovery of RTU fees through usage-sensitive charges. Z-Tel adds that the Commission has authority to impose flat-rate switching charges under the FCC rules[280] and asserts that the Illinois Commerce Commission did just that. Finally,

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[277] Z-Tel's Initial Brief, pp. 6-7, citing Local Competition Order ¶691 and 47 C.F.R. §51.507(a).

[278] Z-Tel's Initial Brief, pp. 7-8.

[279] Case 99-C-0529, Reciprocal Compensation Reexamination, Opinion No. 99-10 (issued August 26, 1999),(Reciprocal Compensation Opinion) p. 56.

[280] Citing 47 CFR §51.509(b).

Z-Tel argues that a usage-sensitive charge has greater potential to over- or underrecover switching investment than does a flat-rate, per-port charge.

WorldCom argues to similar effect, citing the testimony of Z-Tel's witness and the Illinois decision. Its conclusion, however, is somewhat more tentative: "To the extent the Commission believes that switching costs are more appropriately incurred not on a usage-sensitive basis but instead on a per-port basis, this Commission, [like the Illinois Commission], should consider adopting a flat-rated per-port switch cost."[281]

Verizon, for its part, contends that the costs treated by SCIS as usage-sensitive include those directly driven by usage volumes as well as shared costs representing resources used in the processing of calls; it contends that the most equitable way to recover the latter is through usage rates applied to the customer making those calls. (AT&T responds that "equitable" as used here is a code word for an arbitrary allocation.[282]) It argues that Z-Tel's proposal would violate cost causation inasmuch as some switch functionalities are associated exclusively with usage, including the routing of calls through the switch fabric and the operation of the switch processor. While additional minutes of usage will not necessarily require the purchase of new processors or switch fabric, switches are designed with a particular level of usage in mind and may have to be augmented, even if the number of ports remains constant, if that level of usage is exceeded--a result consistent with, rather than contradicting the testimony of its witness in the First Proceeding that switches are configured to "handle all the minutes of use that the ports are forecasted to deliver in the normal peak period."[283] Verizon disputes as well the premise that flat-rate charges are less

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[281] WorldCom's Initial Brief, p. 73.

[282] AT&T's Reply Brief, p. 35.

[283] Verizon's Reply Brief, p. 136.

likely to over- or underrecover costs, contending that accurate recovery of costs on a flat rate structure requires the unwarranted assumption that usage per line will remain stable.

Verizon's proposal would allocate, overall, 36% of switch investment to ports and 64% to usage,[284] and Verizon argues, persuasively, that switching capacity requirements are not totally severed from usage demands, especially in the long run. But though Verizon's arguments preclude adoption of totally non-usage-sensitive rates, Z-Tel makes a strong case for recovering a greater portion of those costs on a non-usage-sensitive basis, in view of the purchase by a UNE user of all of the switching capacity, including features and functions, associated with a port.

To structure these rates it is necessary, first, to identify the portion of switch investment that is associated exclusively with usage and therefore sized to meet peak busy-hour demand. In the First Proceeding, Verizon witness Vanston presented an analysis of switching costs that would warrant allocating only 34% to usage (comprising processor/memory costs at 29% and switching fabric costs at 5%)[285]; and I see no reason, given Z-Tel's arguments, not to move to an allocation along those lines here. Recognizing that data may have changed since the presentation in the First Proceeding was prepared, I recommend a rate structure that assigns no more than 40% of switching costs to usage. In addition, all RTU costs should be recovered on a non-usage-sensitive basis, through the port charge, as Z-Tel proposes.

The switching costs assigned to usage are associated almost exclusively with peak busy-hour usage, but it would be

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[284] The allocations vary by switch manufacturer and by zone: the assignment to ports is 43% in Manhattan, 38% in the major cities zone, and 27% in the rest-of-state zone. (Tr. 4490; Exhibit 323, Workpaper Part B-2, section 4, page 1 of 3.)

[285] First Elements Proceeding, Exhibit 184, (Exhibit Referred to in the Direct testimony of L.K. Vanston Ph.D.), Part F, page 108.

impracticable and unreasonable to try to recover them exclusively from the usage rate for that peak busy hour. The alternatives are to recover them over all usage, as Verizon proposes, or on a non-usage-sensitive basis, through port charges, as Z-Tel proposes. The record suggests that peak busy-hour usage is more closely correlated with total usage than with ports,[286] suggesting that the costs at issue should be recovered over all usage. Accordingly, Verizon should present, in its brief on exceptions, a rate design that recovers the reduced level of usage-sensitive switching costs recommended here through usage rates.

2. Calculation of Usage-Sensitive Rate

Z-Tel argues as well that if the Commission does adopt usage-sensitive pricing, it should adjust Verizon's proposal by spreading switch investment over 365 calendar days, rather than Verizon's suggestion of 251 business days, and should reject time-of-day adjustments to switching usage. It contends that dividing switch investment by 251 business days rather than 365 calendar days overstates charges by about 22.7% and that the only justification Verizon offered for excluding that much traffic was that the data sample it collected did not include weekend and holiday usage. Z-Tel argues as well that there is no cost-causative basis for Verizon's proposed time-of-day adjustments, which it regards as "arbitrary allocations . . . lacking any economic or modeling validity."[287] Verizon responds that the use of 251 business days is correct inasmuch as the switch must be designed to handle peak traffic, and peak traffic is realized only on business days. Taking account of weekend

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[286] That conclusion reflects a comparison between Verizon's actual measured traffic data (referred to at Tr. 2,529) and publicly available residential and business line count data (Exhibit 314-[RAM4]).

[287] Z-Tel's Initial Brief, p. 12.

and holiday traffic volumes in computing the average would result in a figure too low to handle peak load traffic.[288]

Verizon's arguments are misdirected, for the issue here is not how to size the switch but how to spread the costs of a properly sized switch over its usage. Verizon's proposal would totally disregard weekend usage, which, though usually less than business day usage (and hence contributing less to peak load), should nonetheless bear a portion of these costs. To recognize both the reality of weekend traffic and its lower volume, I recommend WorldCom witness Ankum's proposal[289] to spread these costs over 308 days a year, a figure derived by treating each weekend day as one-half of a day.

Verizon does not respond specifically to Z-Tel's criticism of its time-of-day adjustments.[290] Parties may address those adjustments in their exceptions, in light of the other results recommended here on switching rate structure.

Port Additives

Verizon's initial brief defended, against criticisms in AT&T's testimony, Verizon's calculations of the costs of various optional switching features (port additives). AT&T contends, in its reply brief, that the passage in Verizon's initial brief "simply ignores the substantial record evidence that demonstrates that Verizon has not substantiated its claims for feature cost additives."[291] It asserts that properly adjusted port additive rates would be reduced by 89% and urges that they be set no higher than that adjusted level; it suggests they should be set at zero, since the administrative costs of collecting them might exceed the adjusted cost level.

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[288] Tr. 3,487-3,489.

[289] Tr. 3,772-3,774.

[290] Its reply brief (p. 137) cites Tr. 3,487-3,489 as its response to Z-Tel's challenges on both the business day assumption and the time-of-day adjustments. The passage, however, is directed primarily at the former.

[291] AT&T's Reply Brief, p. 34, citing Tr. 1,496-1,504.

AT&T's 89% adjustment represents the proportional reduction applied by AT&T to the switch digital line port UNE to correct for its view of the proper vendor discount and EF&I factor. It would apply that same ratio to port additive rates because the record lacks data on specific vendor discounts related to port additives. That approach seems reasonable, though the amount of the adjustment should of course be recalculated on the basis of my recommendations above with respect to vendor discounts and EF&I. It seems unlikely that the resulting rates would be too low to be worth the administrative costs of collecting them, but the parties may consider that on exceptions.

Refunds

As noted, the switching rates set in the First Proceeding have remained temporary, subject to refund or reparation. AT&T urges that the Commission, after setting new switching rates here, require Verizon "to refund all switching rates paid by CLECs in excess of Verizon's forward-looking economic costs for switching retroactive to April 1, 1997."[292] Verizon does not respond.

Whether to require refunds when temporary rates are reduced is a matter within the Commission's discretion. AT&T has offered no argument in support of its simple request for refunds, and Verizon has not addressed the issue in brief at all. The parties should consider the matter further on exceptions, taking account not only of whether refunds should be required but also of how they should be implemented if required.

[292] AT&T's Initial Brief, p. 80.